

ABSTRACT OF THE DISCLOSURE

A single- or multi-phase step wave power converter includes multiple transformers
10 configured to receive DC voltage from one or more power sources. Each of the transformers
includes a primary winding and a secondary winding. The transformers are each configured
to supply a step for a step wave AC output. Bridge circuits are supplied for controlling input
of DC voltage into the primary windings of the transformers. Steps for the step wave AC
output are output from the secondary windings based upon the input provided to the primary
15 windings. DC source management circuitry manages which DC power source(s) supplies DC
voltage input to each of the bridge circuits. The management circuitry provides seamless
power switching between the plurality of DC power sources based on each power source's
performance characteristics. A pulse-width modulator can also be provided to the step wave
power converter to modulate the input into a selected primary winding. In this way, the step
20 wave AC output can be fine-tuned in substantial conformance with an ideal AC waveform.